

Abstract for ISPS

Dynamics of the Earth's Inner Magnetosphere and its Connection to the Ionosphere:
Current Understanding and Challenges

Yihua Zheng

The Earth's inner magnetosphere, a vast volume in space spanning from 1.5 R_E (Earth radii) to 10 R_E , is a host to a variety of plasma populations (with energy from 1 eV to few MeV) and physical processes where most of which involve plasma and field coupling. As a gigantic particle accelerator, the inner magnetosphere includes three overlapping regions: the plasmasphere, the ring current, and the Van Allen radiation belt. The complex structures and dynamics of these regions are externally driven by solar activities and internally modulated by intricate interactions and coupling. As a major constituent of Space Weather, the inner magnetosphere is both scientifically intriguing and practically important to our society. In this presentation, I will discuss our recent results from the Comprehensive Ring Current Model, in the context of our current understanding of the inner magnetosphere in general and challenges ahead in making further progresses.